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AIR FORCE BALLISTIC MISSILE DIVISION

HEADQUARTERS

AIR RESEARCH AND DEVELOPMENT COMMAND

FOREWORD

6 April 1959

This Annex to the SENTRY Development Plan presents the operational concept for the SENTRY Advanced Reconnaissance System and the plan for obtaining an operational capability by October 1961. It presents the over-all plan for organization, operations and logistics, and describes the method of exploitation of intelligence data derived from the system during both the R&D and operational phases.

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[illegible] SCHRIEVER
[illegible] General, USAF
Comm[illegible]

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I. GENERAL

A. INTRODUCTION

1. The Weapon System [illegible] (SENTRY) is being developed to provide a space reconnaissance and [illegible] operating system which will permit [illegible] and disseminating photographic and electronic reconnaissance data of the entire world land mass on a [illegible] basis.

2. This Annex has been written to [illegible] of the operational concepts for the SENTRY System and to delineate the actions necessary to achieve an operational capability.

3. This Annex also provides for the [illegible] of the [illegible] [illegible] research and development program, and the [illegible] [illegible] of military personnel into the weapon system [illegible] provide for an operational capability [illegible] the earliest possible time consistent with sound management.

B. HISTORY

1. Hq USAF General Operational Requirement No. 80, dated 16 March 1955 and revised 26 September 1958 with four addenda (80-1, 80-2, 80-3 and 80-4), established a requirement to develop an advanced reconnaissance system (ARS) which uses an unmanned space vehicle [illegible] [illegible] gathering equipment. The capabilities specified for this system will satisfy both national and Air Force reconnaissance requirements. The numerical designation of the system is WS-117L and the system's unclassified popular name is SENTRY.

2. References: The contents of this Annex are based on the following:

a. Hq USAF Preliminary Operational Concept, dated 23 December [illegible]

b. General Operational Requirement (GOR) (80) No. 80 dated 16 March 1955, revised 26 September 1958 with four addenda.

c. Operational Annex to ARS Development Plan dated 15 September 1958.

d. Memorandum for the Secretary of the Air Force, Subject: WS-117L Program for Advanced Research Projects Agency, dated [illegible] December 1958.

e. Space System Development Plan, SENTRY Program, dated [illegible] January 1959.

C. DESCRIPTION

1. The SENTRY system is composed of the space vehicles, the ICBM booster, launch facilities, tracking facilities, data processing facilities, technical and operational control facilities, and a [illegible] [illegible]

[illegible]

SENTRY system will be used to obtain electronic (ferret) reconnaissance and photographic reconnaissance of inaccessible areas [illegible] space vehicle will provide [illegible] readout or a recoverable capsule.

a. Recovery Program. Initially, [illegible] payloads. The first payload will be designed to obtain [illegible] of mapping accuracy. The second payload will be designed to obtain [illegible] resolution reconnaissance information. In both cases, [illegible] returned to earth in the recoverable capsule portion of the space vehicle.

b. Readout Program. In the readout program, [illegible] reconnaissance information will be stored in the space vehicle and upon command from the ground the stored images will be converted [illegible] signals for transmission to the ground [illegible] system will employ conventional photographic techniques [illegible] processing and [illegible] readout. [illegible] electrostatic sensors and [illegible] magnetic tape storage.

(1) The electronic reconnaissance (ferret) will collect intelligence information from the electromagnetic spectrum. [illegible] will also be stored in the space vehicle until commanded from the ground to transmit the information to ground-based equipment.

2. During the R&D program, the SENTRY system has been divided into subsystems. A summary of the subsystems follows.

a. Subsystem "A" - Airframe. The airframe subsystem includes the entire space vehicle structure, propellant tanks, [illegible] storage vessels and equipment installations. This subsystem also includes the adapter section which [illegible] vehicle to the booster.

b. Subsystem "B" - Propulsion. This subsystem includes the orbital boost engine; the gas generator and turbo-pump [illegible] system; the turbo pump start system; [illegible] fuel, and oxidizer vent systems [illegible] establishing orbit; and the [illegible] on the adapter to facilitate vehicle separation from the booster. This subsystem also includes a low thrust propulsion system capable of [illegible] positive or negative [illegible] velocity corrections as required by the payload (orbital control system).

[redacted]

c. Subsystem "C" - Auxiliary Power. This subsystem is devoted to the development of auxiliary power systems. Upon the initiation of the operational program, research and development in the auxiliary power subsystem will have proceeded to this point, where solar photovoltaic devices will be used with a high energy (hydrogen-oxygen fuel cell) battery. [illegible] possibility also exists that early in the operational program [illegible] the SNAP-1 radioisotope auxiliary power system will be available. This subsystem also includes the necessary regulators and inverters.

d. Subsystem "D" - Guidance and Control. This subsystem includes the equipment necessary to guide and control the space vehicle into the desired orbit and to control its attitude in orbit. Guidance during boost will be accomplished by the Atlas [illegible] guidance system [illegible]. However, [illegible] guidance and control system will [illegible] control of the [illegible] separation from the booster.

e. Subsystem "E" - Visual Reconnaissance.

(1) Readout. The subsystem equipment for the visual reconnaissance readout program consists of the space vehicle-borne equipment required to collect intelligence information in the visible spectrum, to process and store this information [illegible] command signal, to convert the stored image to an appropriate video signal for transmission to the ground by the ground-space communications subsystem data link. This subsystem also consists of the ground-based equipment required to take the output of the data link and reconstitute the signal into photographic form for further processing and intelligence use.

(2) Recovery. The plans for the visual reconnaissance recovery program call for two separate payloads, one for the purpose of obtaining mapping coverage, and the other for high resolution reconnaissance information. In both cases, the data is returned to earth in the recoverable portion of the satellite vehicle.

f. Subsystem "F" - Ferret Reconnaissance. This subsystem includes the equipment to conduct a program consisting of increasingly sophisticated ferret packages, progressing from the basic F-1 system through the F-2 and F-3 systems to an eventual versatile and [illegible] capability. [illegible] versions will include detection and classification of unusual signals, measurement of additional parameters; improved locational accuracy, [illegible] recording of specific signals, and 'National Indicator' type [illegible].

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b. Subsystem [illegible] Ground-Space Communications [illegible] Space communications Subsystem will perform the following [illegible] acquisition and tracking of the space vehicle, [illegible] electronic recovery [illegible] communications and the command system [illegible] ground station.

c. Subsystem [illegible] Data Processing [illegible] system includes [illegible] necessary to [illegible] of the SENTRY program [illegible] intelligence data derived [illegible] This subsystem [illegible] operation and to handle the large quantities of input data [illegible] between interpreters [illegible] individual items [illegible] with other source data [illegible] development of the system [illegible] delay between receipt of data [illegible] for comparing previous coverage [illegible] correlating data from photo, ferret, and infrared [illegible] will be provided.

d. Subsystem [illegible] Personnel Subsystem. This subsystem is concerned with the design and development of the personnel segment of the weapon system. It consists of system human engineering, qualitative personnel requirements information (QPRI), task equipment analysis and the technical manuals effort.

D. MISSION

1. The mission of the SENTRY system is to provide source data which contributes to determining the earliest possible warning of potential enemy capabilities for attack on the United States or friendly nations. This will be accomplished by maintaining selective surveillance of enemy activity and areas under their control. The SENTRY system will provide:

a. Continuous intelligence data flow for assessment of Soviet military activity.

b. Continuous intelligence data for assessment of Soviet military and industrial capabilities.

c. Continuous and repetitive visual reconnaissance of selected target areas.

d. Detailed mapping information of the Soviet complex.

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2. ARDC (AFBMD) has [illegible] responsibility for [illegible] reconnaissance system, and [illegible] initial operational capability.

EMPLOYMENT OF THE DEVELOPMENT/OPERATIONAL FORCE

1. The extreme urgency for intelligence data [illegible] for acquiring intelligence data for operational purposes [illegible] in the R&D [illegible] capability [illegible] As a result, [illegible] reconnaissance data [illegible] agencies [illegible]

2. In order to develop an early Air Force capability in all system functions, units will be activated, organized and [illegible] participate in system test activities [illegible] in accordance with the provisions of AFR 80-14.

3. Due to the necessity of expediting the R&D program, there will be facilities designed principally for research and development [illegible] facilities will also be used to provide [illegible] and experience for Air Force personnel. These facilities are:

a. Development Control Center, Sunnyvale, California. The DCC exercises over-all control of the R&D SENTRY [illegible] serves as the focal point of all [illegible] R&D test operations. The DCC is [illegible] network, and is responsible for [illegible] mission control and quality control [illegible] facility will be known as the Technical Operations Control Center (TOCC).

b. Data Processing Development Laboratory, Sunnyvale. The DPDL is an R&D facility where certain elements of the [illegible] are fabricated and where minimum numbers of [illegible] assembled, checked out, and integrated into a system for testing. Simulated inputs and copies of real data taken [illegible] test, exercise, and shake-down the system [illegible] and equipment redesigned and modified as required [illegible] evaluated, and finally the initial system of man/machine methods, procedures and relationships are evolved. Improved/advanced [illegible] techniques will first be tested and integrated in the DPDL [illegible] subsequent modifications to the operating system [illegible] and technical liaison between the operating system and the DPDL provides timely feedback for redesign and modification purposes.

B. OPERATING CONCEPT

1. Launch. The R&D flights to be launched at Pt Arguello will be the responsibility of ARDC. Designated contractors will provide technical assistance and support as required. During the R&D launches in the 1960-1961 time period, provisions will have been made for "on the job" training and participation of Air Force military personnel. Operational launches, beginning in October 1961 will be the responsibility of and performed by Air Force personnel under the operational control of the ARDC 6594th Test Wing. Separate launch facilities for R&D and operational activities will be required. Prior to September 1961, it is planned that the 65-1 launch complex and a separate ground guidance station at Vandenberg AFB will be made available for subsequent operational launchings. In order to make this complex available for the SENTRY, it will be necessary to secure the agreement and approval of the Strategic Air Command.

2. The SENTRY operational program will utilize the following tracking and acquisition stations (T/A) for ground-to-space communications and control:

a. The North-east Station-New Boston Bombing Range, New Hampshire

b. The Central Station-Naval Air Station, Ottumwa, Iowa

c. The Southwest Station-Vandenberg Tracking and Acquisition (T/A) Station, Vandenberg Air Force Base, California

d. Hawaiian Tracking Station, Territory of Hawaii (further determination will be made to ascertain if this facility will actually be needed in the operational program).

3. The Technical Operations and Control Center (TOCC) and the Intelligence Processing Center (IPC) will be established at Offutt AFB, Nebraska. The TOCC and the IPC will be housed in a single facility in order to provide for the most efficient operation. The TOCC will be an operational function within the Wing Headquarters whereas the IPC will be a separate squadron under the Wing. Broad-band communications data links will be provided between the tracking/acquisition stations and the TOCC and IPC to facilitate instantaneous relay of all received data and program control.

C. COMMAND RESPONSIBILITIES

1. Hq USAF:

a. Hq USAF will establish the relative priority of intelligence collection requirements for the operational program through the Office of the

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1. Assistant Chief of Staff, Intelligence (AFOIN)

b. AFOIN will consolidate all other National Agency intelligence requirements on a continuous basis and furnish these to the Commander ARDC (AFBMD) in the form of specific SENTRY intelligence [illegible] requirements.

2. Air Research and Development Command (ARDC). ARDC will exercise command jurisdiction over the SENTRY [illegible] organization and will prepare plans and directives necessary for the achievement of an operational capability in consonance with [illegible] requirements.

3. Strategic Air Command (SAC).

a. SAC will provide ARDC advice and assistance on intelligence collection and processing matters as required.

b. SAC will make available existing facilities and equipment for the dissemination and processing of intelligence data.

4. Air Materiel Command (AMC). AMC will assume support responsibilities for the SENTRY operational program and will prepare the necessary support logistic plans.

5. Air Training Command (ATC).

a. ATC, in coordination with AFBMD, will develop and publish a personnel training concept in support of the system.

b. ATC will provide training as required based on time-phased quantitative, and qualitative requirements submitted by AFBMD.

H. OPERATIONAL CHARACTERISTICS

1. The ICBM booster (ATLAS) provides the primary propulsive power to the SENTRY space vehicle. Separation occurs on reaching the proper altitude and attitude. As the booster falls away, the space vehicle continues in a self-stabilized pre-determined coast to a programmed altitude. At the termination of the coast phase, the space vehicle's internal power plant activates, supplying the orbital velocity. Internal controls will then erect the vehicle to the proper attitude. The vehicle will be programmed to initiate and terminate sensing equipment in the target area in accordance with a pre-determined program.

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2. Revolutions around the earth will be repeated at approximately 90 minute intervals. The space vehicle will continue around the earth and when within range of a ground receiving station, upon command, the sensory equipment will begin to transmit the recorded data. These data will be received, processed, and transmitted to the using agencies. In case of a recovery payload, the vehicle will receive programming commands only from the tracking station. Expected useful life for early versions of the system is of the order of ten to thirty days. Expected useful life for later versions of the system is in excess of a year.

3. The SENTRY system will provide a reconnaissance capability of two modes, readout and recovery.

a. Readout Program

(1) Visual: The reconnaissance equipment for the visual reconnaissance readout program consists of the space-borne equipment required to collect intelligence information in the visible spectrum, to process and store this information, and on a command signal from the ground, to convert the stored images to appropriate signals for transmission to the ground. Initial visual equipment will be capable of resolving targets 20 feet in size, and development will continue toward the goal of achieving resolutions of five feet or less.

(2) Ferret: The electronic reconnaissance subsystem (Ferret) consists of the space vehicle-borne equipment required to collect information from radiation in the region of the electromagnetic spectrum between 30 mc to 40,000 mc/sec; to store this information; to filter or index it as may be necessary, and at the proper time, to reconvert the stored information into an appropriate electrical signal for transmission to the ground by the ground-space communication subsystem.

(3) In addition to the space vehicle-borne equipment for the above two modes of capability, related ground-based equipment is required to take the data output of the vehicle for further processing and intelligence use.

b. Recovery Program

(1) Visual: The visual recovery program will provide initially for two separate payloads. The first of these payloads will be designed to obtain photographic coverage of mapping accuracy and the other payload will be designed to obtain high resolution reconnaissance information. In both cases, the data will be returned to the earth in the recoverable capsule portion of the space vehicle.

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(2) Recovery Capsule. A large recovery capsule will be developed. The capsule will have a base diameter of approximately [illegible] feet and the reentry body will weigh approximately [illegible] hundred pounds with a recoverable payload of [illegible] hundred pounds. The heat shield will be either ablation or sublimation type, and will be [illegible] recoverable payload at 75,000 ft by means of a recovery [illegible]. Instrumentation will be provided [illegible] or deceleration and temperature during reentry.

(3) Recovery Operations. Over-water recovery will be accomplished by utilizing aircraft with air recovery equipment. The capsule will be decelerated by a [illegible]-type parachute deployed at [illegible] ft. Recovery dispersion for precision recovery will be within a [illegible] mile diametric circle at 50,000 ft.

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III. OPERATIONS

A. EMPLOYMENT

1. The operational mission of this system is to provide reconnaissance of world-wide and/or preselected areas for the following:

a. Strategic warning of attack.

b. Collection of intelligence data to satisfy national intelligence objectives.

c. Support of United States Emergency War Plans (EWP).

d. An aid in determining the intentions of a potential enemy and the status of his warmaking capabilities.

2. Space vehicles will be employed to acquire [illegible] concerning locations, [illegible] offensive forces, defensive systems, technological [illegible] topography and geography. [illegible] of the photographic, electronic, infrared, or other sensors, will be employed to provide the desired coverage.

3. Intelligence derived from SENTRY will be exploited and disseminated in [illegible] operations [illegible] with [illegible] bearing on the national intelligence objectives priority as follows:

a. Priority 1 - Warning of attack.

b. Priority 2 - Warning of possible preparation for attack.

c. Priority 3 - Strike target intelligence.

d. Priority 4 - Penetration of air defenses.

B. MISSION ASSIGNMENT

Specific areas of interest to be maintained under surveillance will be assigned by ARDC (AFBMD) in consonance with over-all intelligence requirements as designated by AFCIN.

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C. OPERATIONAL REQUIREMENTS

1. Launch and Vehicle Tracking. [illegible] located at Vandenberg AFB, California [illegible] California in the Southwest U.S.; at New Boston [illegible] in New Hampshire, the Northeast U.S.; and at Ottumwa, Iowa, the Central U.S.

2. Reconnaissance Capabilities. [illegible] intelligence information is essential [illegible] In consideration of [illegible] the ARS, the engineering program [illegible] resolution. Intelligence information will be obtained which will contribute to the following:

a. Improved knowledge of potential enemy capabilities and intentions which will greatly improve the ability of the U.S. to conduct peacetime negotiations, to plan adequate defenses, and to launch the [illegible] strike force, should such a necessity arise.

b. Accurate target information will be currently available for targeting the strike force.

c. Ferret data will be obtained and used for the development of suitable countermeasures.

d. Disposition and nature of defense installations will be observed and used to develop effective penetration tactics.

e. Technological data will be acquired and used for the proper orientation of the U.S. weapon systems and possibly for their improvement.

3. Technical Operations and Control Center (TOCC). Launch commands, space vehicle adjustment commands, quality control monitoring, and space vehicle mission control will be exercised from the centralized Technical Operations and Control Center, located at Offutt AFB, Nebraska.

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4. Intelligence Processing Center (IPC). Reconnaissance and surveillance data will be transmitted from the [illegible] stations to the Intelligence Processing Center (IPC) through the [illegible]. The objectives of the IPC are to:

a. [illegible] and report [illegible] reconnaissance sensors [illegible] SENTRY [illegible].

b. Provide [illegible] records as source material for intelligence [illegible].

c. Provide [illegible] and quality control [illegible] SENTRY system. The [illegible] and IPC will be [illegible] intelligence data will be [illegible] processed and subjected to [illegible]. This information will subsequently be [illegible] governmental agencies for further interpretation and analysis.

5. Communications. The SENTRY communications system will be one integrated operational system. However, because of the continuing development efforts during the operational phase, [illegible] will be [illegible] into the communications systems [illegible] be provided for: (1) [illegible] communications [illegible] (2) [illegible] net between launch [illegible] squadrons and the [illegible] organizations [illegible] planning and implementation, the system will be [illegible] to consist of six main subsystems, described as follows:

a. Administrative Communications are the normal communications found at any Air Force Base, modified where necessary, to comply with SENTRY requirements. These support facilities consist of the base telephone exchange (central switching facility), [illegible] lines [illegible] at the various installations (which are used for [illegible] supply, [illegible] and administrative functions), and base non-tactical radio services (maintenance, security, taxi services, etc.).

b. Technical Communications are the [illegible], circuits and terminations for those communication functions concerned with launching operations, inter and intra station communications and the command system.

c. Data Link Communications are the video circuits, wide band graphic circuits and lines to permit transmission of reconnaissance data to the Intelligence Processing Center. To insure [illegible] of the intelligence information at the IPC, video circuits between the [illegible] stations and the IPC must permit real-time transmission of the intelligence data.

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3. Ground-Space Communications [illegible] are the circuits between tracking and acquisition stations and the vehicle orbiting in space. These are two-way circuits, and perform the functions related to determining the position and commanding the vehicle, programming the [illegible] adjusting auxiliary devices, and transmitting reconnaissance data from the vehicle to the tracking and acquisition stations.

4. Logistic Communications. The logistic system [illegible] concept of logistic support will be employed for the SENTRY System. [illegible] not in support of the [illegible] will be as outlined in the SENTRY [illegible] plan as prepared by Air Materiel Command.

5. Other Communications Requirements. It is recognized that ultimately the [illegible] headquarters and subordinate [illegible], with certain exceptions, will be located on or adjacent to existing USAF installations. These USAF installations will be responsible for providing additional [illegible] facilities as required.

6. Space Vehicle and Payload. Space vehicles and payload equipment will be provided in the quantities needed to accomplish the reconnaissance mission. They will be received in the [illegible] assembly building at Vandenberg Air Force Base directly from the manufacturer. The SENTRY Launch Squadron will install the payload equipment, assemble the space vehicle and booster vehicle, and accomplish inspection, maintenance, modification and storage.

7. Trajectory Computations. ARDC (AFBMD) military personnel will be trained for the [illegible] computing boost-to-orbit trajectories, [illegible] trajectories, and orbital computations for data processing and control.

D. INTELLIGENCE REQUIREMENTS

1. All reconnaissance data collected during either the R&D phase or operational phase will not be handled by other than Air Force personnel. Actual flight data required by the contractor for R&D purposes will be provided by the Air Force after the data has been reviewed and sanitized. The data will be considered as useful intelligence information, beginning with and including the first instrumented R&D flight, as well as the operational [illegible] on flights. This material will be processed by Air Force personnel and placed, as soon as possible, into intelligence channels for further exploitation. The processing and utilization of the data will be achieved generally in three separate but related phases:

a. Phase I - Processing and Exploitation. [illegible] during this phase will produce and disseminate, on a timely basis, information required for system operation and command of the satellite [illegible]. In addition, initial or critical information and select source material as required by the intelligence agencies for their own internal exploitation will be produced and disseminated as directed by Hq USAF. [illegible] data processing will be handled differently in the R&D program as compared to the operational program.

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(1) During the R&D period the Phase I processing will be accomplished by Air Force personnel in two steps. The output from Subsystem [illegible] and [illegible] will be converted to standard format, [illegible] and merged for the Subsystem [illegible] orbital data at the [illegible] R&D [illegible] tory. The data [illegible] will be turned over to the Strategic Air Command for [illegible] in accordance with HQ USAF directives.

(2) During the operational period, after the completion of the SENTRY Intelligence Processing Center at Offutt AFB, Nebraska, Phase I processing will be accomplished within the Center.

b. Phase II - second phase processing and exploitation will produce intelligence for support of the national security policy, indications intelligence and for support of a quick reaction capability. The output of Phase I processing, in the form of [illegible] intelligence information and select source material, will be integrated with all source collateral material and the SENTRY derived data will lose its identity in the final product. Items such as National Intelligence Estimates, [illegible] order of battle, and Air Order of Battle, will be produced and disseminated. Phase II exploitation is accomplished by intelligence producing agencies outside of the SENTRY Intelligence Processing Center.

c. Phase III - third phase processing and exploitation will expand the data and material produced during Phases I and II. [illegible] phase will include production of [illegible] requiring detailed search, analysis, and evaluation of all source material and graphics, such as topographic maps, geodetic data sheets, air navigation and target materials. Phase III exploitation is accomplished by intelligence producing agencies outside of the SENTRY Intelligence Processing Center.

2. These three processing phases are divided into two separate time periods. The first period begins with the initial reconnaissance instrumented R&D launches in the Spring 1960 and continues until the Operational Center at Offutt AFB is completed and equipped to operate in October 1961. The second period is the truly operational period beginning in October 1961 and extending into the future.

← Period →	← Period →	
R&D Flights	Operational Follow-on and R&D Flights	Operational Flights
Initial reconnaissance instrumented R&D flights	Oct 1961 Operational Center at Offutt.	

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3. <u>Research and Development Program (Period 1 Apr 1960-Oct 1961)</u>

a. Electronic Readout. The memory subsystem in the [illegible] Phase III will include both Subsystem "E" (photo) and "F" (ferret). [illegible] continuously collaborate with the [illegible] during this period to assist in providing SAC with an interim capability to accomplish the steps required for the Phase I processing.

b. Subsystem "E" (36" focal length photo). The following responsibilities and functions pertaining to the flow and processing of the reconnaissance system data resulting from the photographic payload.

(1) The Instrumentation Squadron (T & A Stations) will provide, by the fastest communications method available:

(a) Three copies of the 35mm primary record and one (1) copy of the video tape to the DPL at Denver.

(b) Tracking data to the DCC at Palo Alto for incorporation in the orbital computations.

(2) The DCC at Palo Alto will provide:

(a) Engineering feedback as required for proper control of picture quality and for development and improvement of the system.

(b) Orbital navigational data on magnetic tape to the DPL at Denver.

(3) The DPL at Denver will provide:

(a) Engineering feedback as required to the DCC at Palo Alto to improve picture quality, system development and operation.

(b) Original negatives of the primary record reassembled into 9-1/2 inch wide film properly titled with the navigation, attitude and other applicable data, duplicate center format 70 mm film chips and any special

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in an R&D role to provide the [illegible] of advanced control and data processing techniques, and the incorporation of such techniques and equipment into the operating system as required to fulfill system objectives.

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III. ORGANIZATION AND TRAINING

A. Organization and Manpower

1. Manpower

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a. All units will be initially organized [illegible] an appropriate authorization document.

b. Subsequent to the publication and [illegible] the organizational structure and supporting units will be completed in detail and entered in this Annex.

c. Manpower authorizations and personnel will be furnished from USAF resources.

2. Organization

a. ARDC will exercise command jurisdiction over the 6594th Test Wing to be activated in April 1959 and located with the [illegible] Control Center (DCC) at Palo Alto, California. The [illegible] will become a function of the 6594th Test Wing [illegible] Satellite Systems, ARDC, will provide day-to-day operational and technical guidance to the Wing during the R&D phase and until the operational [illegible] becomes sufficiently defined and [illegible] to permit [illegible] operation. A tentative organizational chart is included to indicate functional alignment.

b. The 6594th Test Wing will exercise command jurisdiction over:

(1) 6594th Launch Squadron, Vandenberg AFB, Calif.

(2) 6596th Instrumentation Squadron, Vandenberg AFB, Calif.

(3) 6594th Instrumentation Squadron, New Boston Bombing Range, New Hampshire.

(4) 6595th Instrumentation Squadron, Ottumwa, Iowa.

(5) 6594th Data Processing Squadron, Denver, Colorado.

(6) 6594th Wing Operating Location, [illegible], Alaska.

(7) 6594th Wing Operating Location, [illegible], Alaska.

(8) __________ Recovery Control Group, Hawaii.

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c. The ____________ Recovery Control Group will be responsible for operation of the recovery control center and will exercise command jurisdiction over:

(1) 6593 Test Squadron (Special) Hickam AFB, T.H.

(2) ____________ Instrumentation Squadron, Hawaii.

3. Personnel Policies.

a. Procurement and training of personnel will be time-phased with the availability of equipment and facilities.

b. Control, key staff and technical cadres will be phased into the system for familiarization, experience and participation in the test phases of the R&D program well in advance of operational dates.

c. Manning and personnel utilization provide for operation on "normal commuting 8-hour shift basis."

d. Launch crews will be on 8-hours, [illegible] shifts. All other units will be manned on a 24 hours basis whenever space vehicles are on orbit.

B. TRAINING

1. A detailed personnel training concept to support the SENTRY system will be developed jointly between AMC and ARDC. The initial meeting to consider this problem will be held during the month of April 1959. An over-all program will be established to insure that the 6594th Test Wing and its subordinate units will be sufficiently well trained to assume responsibility for operational control and provide an initial operational capability by October 1961.

2. Factors and statements of consideration to be reviewed during the personnel training concepts conference are as follows:

a. Selection and training of personnel for the SENTRY System should take into account the several unique characteristics of the system. Training for skills unique to the system should be tailored for the relatively small numbers of personnel required in each specialty. Highly qualified personnel in specialities (and systems) closely related to SENTRY requirements should be provided in order to reduce the in-training time and over-all training costs.

[redacted]

b. Operational control, key staff and cadre operating and maintenance personnel should be participants in the test program wherever possible, and "grow up" with the system through observation and participation in the contractor's R&D and test program.

c. In order to minimize continual upgrading of such items as personnel skills, Air Force technical manuals, training materials and training equipment, major components or [illegible] operating and maintenance [illegible] should be phased into training as equipment and [illegible] personnel [illegible] procedures approach stability.

d. Training for specialties requiring small numbers of personnel should be accomplished "on-site" wherever possible in order to reduce costs of off-site training facilities and training equipment.

e. Training for launch crews should be planned on the assumption that input will be made from SM-75 THOR and/or SM-65 ATLAS weapon systems.

f. The requirement for a period of formalized overall integrated systems training prior to the initial operational capability date should be reviewed in detail as to the specific requirements. If required, the best method, location, and duration of the program should be developed with major consideration given to attaining a reasonable balance between quality training and cost.

3. <u>Unit Training and Proficiency Evaluation</u>

A system for unit training and proficiency evaluation (UT & PE) will be required in order to increase and maintain operational proficiency, to integrate replacement personnel into the system and to provide instruction on system modifications. Unit training and proficiency evaluation should be performed on site and within the actual job environment.

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TOP SECRET

RESEARCH AND DEVELOPMENT
Military
Space Systems
Satellite Systems
Directorate
6594th Data Proc
Sqdn, Denver, Colo
6596 Inst
Sqdn, VAFB
Sqdn, VAFB
Support
Support
Control Group
(Special)
6594th Wing
Operating Loc.
Alaska
6594th Wing
Operating Loc.
Alaska
Sqdn

[redacted]

IV. LOGISTICS

A. GENERAL

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1. The overall management responsibility for the logistics support of the operational program will be that of AMC in coordination with the using command.

2. Logistics support of the operational SENTRY program will be accomplished in accordance with the approved SENTRY Logistics Plan to be published by AMC.

3. Prior to publication of the final Sentry System Logistics Plan, a detailed study of the most appropriate means for the handling of logistic, field, and depot maintenance support to the SENTRY system will be undertaken. Pending the completion of this study and the publication of the approved Logistics Plan, the following guidance pertains.

4. Material Support. From the beginning of the SENTRY operational program, the AMC SENTRY Logistics Support Manager will manage the AMC support of all supply and depot maintenance requirements for the booster portion (SM-65 missile and its ground support equipment, including common and standard GSE, and spare parts) required in support of the SENTRY program.

5. In the initial phase of the operational program, the development agency will be continually modifying and supplementing equipment in the readout (R/A) stations, orbiting vehicle, and peculiar ground support equipment. As systems become relatively firm in configuration, management support responsibility for selected hardware will be transferred from the contractor to AMC support. At this point in time, Air Force provisioning procedures and documentation requirements required in support of the operational organizations will be placed into effect.

6. Special measures will be taken to identify and control the equipment and spare parts required for the direct mission support of this weapon system to prevent their absorption into the Air Force inventory in such a way as to require excessive pipeline quantities and elaborate control in order to assure ready availability to the user.

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[redacted]

7. Maximum possible use will be made of [illegible] materiel facilities.

8. The equipment and personnel required for [illegible] will, in most cases, be the same as/or compatible with that required for launchings.

9. No radical changes in the [illegible] logistics fields are anticipated in supporting [illegible] when viewed from the weapon system and its [illegible] ground support equipment aspects.

B. PROCUREMENT

1. The overall procurement program will be planned and executed to provide a build-up of equipment and spares [illegible] schedules. Quantity procurement [illegible] will be delayed consistent with [illegible] usage data as possible from [illegible] program. Special attention will be concentrated on long lead time [illegible] high cost items.

2. Initial provisioning of spares for the direct support of the SENTRY weapon system will be held to a minimum to preclude an excess stock of obsolete items resulting from the modifications, engineering changes, etc., effected during the early stages of the program.

3. Procurement for the [illegible] associated ground support equipment and spare parts will be accomplished by the AMC Ballistic Missile Center. Requirements for these items must be identified by the AFBMD in sufficient time to allow for procurement action on the part of AMC Ballistic Missile Center.

C. SUPPLY

1. Supply support for this program will be planned to provide availability concurrently with and in support of operational and maintenance requirements.

2. The application of the item or service and not the item or service itself, determines the priority within the [illegible] system.

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3. Stockage of support spares at the [illegible] will be consistent with the maintenance requirements and capabilities of assigned personnel. Additional items will be stocked in the SENTRY Squadrons as necessary to meet the self-sustaining requirement.

D. TRANSPORTATION

1. The SENTRY is being designed for air transportability. However, the fastest and most suitable mode of transportation (air or surface) consistent with military requirements and over all economy will be used for support. Packaging and preservation methods will insure protection consistent with the method of transportation to be used, anticipated storage conditions and the ultimate destination. Packing, crating, gross weight and cubage will be minimized toward compatibility with [illegible].

2. Surface transportation, except that peculiar to the organization, will be provided by the support base.

3. Air freight and/or commercial transportation facilities at the support base will be required to meet the incoming and outgoing shipment of missiles, GSE and spares associated with the weapon system.

E. MAINTENANCE

1. GENERAL

a. There will be three levels of maintenance performed on WS-117L Advanced Reconnaissance System. These are organizational, field and depot. The using command will be responsible for all organizational and field level maintenance on satellites, boosters, readout station equipment, Central Intelligence station equipment and related support equipment. Depot level maintenance is the responsibility of the Air Materiel Command. It will include that maintenance which is beyond the capability of the using organization and will be performed at contractors' facilities, at AMA's/Depots, or through the use of mobile depot level maintenance teams.

b. Maintenance of communications equipment installed at the readout stations and at the Central Intelligence Station, together with their components, shall be performed as prescribed in this document. For maintenance of command communications fixed facilities for operational control (such as telephone and microwave), the using command will augment troop capability, where necessary, by separate contracts.

c. The maintenance policies and procedures outlined for the SM-65 Ballistic Missile Weapon System will be utilized in support of the SM-65 booster and related GSE in support of this weapon system. For the purpose of this plan, these detailed policies and procedures will not be repeated. However, the general concept for the [illegible] readout station, and the booster is [illegible].

d. To establish clearly the authorized scope of organizational and field maintenance, the BMD/ESD in coordination with ARDC and the using command will develop a master list of items which can be repaired at organizational and field level.

2. ORGANIZATIONAL LEVEL MAINTENANCE

a. Organizational maintenance shall be that maintenance accomplished by a [illegible] Squadron. It will include communications and electronic maintenance accomplished at readout stations and the central intelligence station. In addition, it will include work accomplished in the launch area on major systems, subsystems, accessories and components, while they are installed in their normal operating environment. This includes normal squadron functions, such as pre-launch, daily, weekly and periodic inspections, routine equipment servicing and preventive maintenance, and the removal and replacement of unserviceable components.

b. The authorized organization maintenance list as specified in paragraph 1.d. above will be published in appropriate technical orders with determinations in the following areas:

(1) Launch Pad and On-Site (Launch) Maintenance - Launch pad maintenance is that maintenance performed on the booster and satellite while on the launch pad. On-site maintenance is that maintenance performed on guidance, tracking and data acquisition equipment in its installed position. This maintenance shall consist of performing minor periodic inspections, isolating malfunctions, removing and replacing components, accessories, assemblies, plug-in units, etc., and performing necessary alignments, calibrations, and tests to determine whether the equipment meets the established operational requirements. The extent of such maintenance should be that which is possible, consistent with accessibility and operational concept time limitations. Maintenance which is beyond the capability of launch pad and on-site maintenance personnel will be performed by specialized

[illegible]

[illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible]

tenance area at [illegible] [illegible] depot [illegible] [illegible] incident to [illegible] capabilities prior [illegible] stallation on launchers.

(b) [illegible] cleaning, lubrication and [illegible] check, and alignment of [illegible] guidance, tracking and data [illegible]

(c) [illegible] tenance beyond the capability [illegible] specialists from the bench [illegible] evacuated to the bench [illegible]

(2) Bench (Shop) [illegible] 66-27 and T.O. 00-25-139 is [illegible] and repair of components, accesso[illegible] the launch pad, on-site, and [illegible] capability shall be defined in [illegible]

which are beyond the repair capability of the ARS Squadron maintenance activity and mobile maintenance teams should be forwarded without delay to the appropriate contractor or AMC depot repair activity as prescribed in Section IV. The items which will be utilized in determining the scope to which field level type maintenance will be authorized are as follows:

(a) Assemblies, subassemblies, components, and parts will be repaired and returned to a serviceable condition when the simple detection and replacement of comparatively minor items (resistors, capacitors, switches, fuses, plugs, tubes, nuts, screws, bolts, springs, transformers, etc.) are practical and do not affect reliability.

(b) The repair of assemblies, subassemblies, components and parts should not require the establishment of large stocks of peculiar hi-value items.

(c) Special skills, facilities, tools, test fixtures, and checkout equipment should be limited to minimum quantities needed for receipt, verification, assembly checkout and minor repair only.

(d) Major repair, overhaul and modification of sub-systems and major assemblies, such as guidance, control and propulsion packages will normally be accomplished by contractors or Air Materiel Command AMA's/depots.

4. <u>DEPOT LEVEL MAINTENANCE</u>

a. The Air Materiel Command will be responsible for the management control of all depot level maintenance, both contract and USAF. This includes the provisions for mobile depot level teams for assisting the using command to accomplish work which is beyond his resources and capabilities. This will include but is not limited to major modifications and repairs, mass assembly of satellites and boosters, major overhauls, storm and explosive damage, etc.

b. Depot level maintenance support for WS 117L peculiar items will be provided by the appropriate contractor. The contractor's production facilities and equipment will be used to accomplish depot level support.

c. Depot level contractor maintenance for WS 117L peculiar items shall be continued until such time as studies indicate that such maintenance should be accomplished by an AMA depot. At that time, the maintenance program shall be reevaluated from the standpoint of military effectiveness, economy, and capability of personnel. Constant surveillance shall be exercised by the ISM to insure that contractor maintenance is performed in the best interests of the Air Force.

d. The "SKY TECH" principle shall be utilized whenever possible to furnish specialist team support to the using organization. The contractor shall possess such a mobile team capability in order to provide maintenance support as far forward as possible. This support shall be rendered as prescribed by the BMC/ISM.

5. FEATURES AFFECTING MAINTENANCE

a. Due to the size, weight, fragility and short time span between production and actual launch, it is infeasible to return satellites to depot level facilities for major repairs. Special techniques and procedures developed to repair these items at organizational level will be held to a minimum. Whenever practicable, [illegible] will be repaired on site through the use of contractor and Air Force mobile teams. Sufficient organizational level tools and spares will be provided to permit maximum repair capability at the launch squadron.

b. The guidance accuracy required to insure orbital success is attainable only through the proper integrated functioning of operational GSE and associated test equipment within precise tolerances. An added calibration requirement is thus evident. AMC shall take early action to define the weapon system calibration requirements. AMC shall insure an early calibration capability at organizational and depot level.

6. TECHNICAL DATA: The development of handbooks in sufficient time to meet training and operational dates will be managed by ARDC. AMC will provide support as required to the manual development program and will deliver available manuals in the booster area.

7. MODIFICATION

a. Major overhaul and modification of major communications gear, boosters, satellites, and associated equipment shall be performed at organizational level wherever possible. When necessary, personnel and equipment should be augmented through the use of mobile repair teams from the depot level repair facility. Those modifications which cannot be economically performed in the field, or which require equipment such as special stands, environmental conditions, or calibration equipment which exceeds the capability of portable standards, will require return to contractor production facilities. The contractor shall maintain a continuous capability to modify existing equipment to the latest configuration, as directed by the Air Force. ARDC shall insure that modifications of the satellite system which affect the booster package or associated GSE are properly coordinated with the affected ballistic missile contractor. Those items which have received development acceptance (adopted status, as defined in ARDC Regulation 80-4) shall be modified as prescribed in AFR 57-4.

b. Modification actions shall include all training equipment on the same basis as operational equipment, to insure that training is not conducted on obsolete configurations.

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V. FACILITIES

A. GENERAL

In order to provide facilities by the established dates for the SENTRY program, [illegible] are currently being employed. The means of accomplishing site selection, programming, design and construction will be governed primarily by technical support requirements. Close coordination will have to be effected with the host commands to insure that operational and technical requirements for tenant and support activities are satisfied in the appropriate time period.

B. SYSTEM FACILITIES

1. Launch

Locations to be [illegible] at the launch sites during the 1960-61 time period [illegible] programmed for [illegible] launches currently scheduled. As the number of R&D and operational launches [illegible] late 1961 time period, additional launch facilities will be required. An investigation has been conducted to determine the feasibility of utilizing launchers of the 65 complex at Vandenberg AFB for launching operational reconnaissance satellites [illegible] by October 1961. Facilities will also be required at Vandenberg AFB to receive, inspect, and maintain [illegible] boosters and satellites for both the R&D and operational programs.

2. Tracking and Acquisition (T/A)

Unhardened facilities will be provided for three tracking and acquisition stations to be located at Vandenberg Air Force Base, New Boston Bombing Range, New Hampshire, and Ottumwa, Iowa, as part of the R&D program. These technical facilities will be designed to permit both operational and R&D activities. Facilities will also be provided as part of the R&D program to permit on-site maintenance. Joint use of these facilities for both R&D and operational purposes in the 1961 to 1965 time period will greatly reduce the over-all cost of facilities.

3. Control & Processing (TOCC and DPC)

Control and Intelligence Data processing facilities will be provided at Offutt Air Force Base, Nebraska, as part of the operational program. These facilities will be used primarily for the operational program commencing October 1961.

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C. SUPPORT FACILITIES

1. Facilities for administrative functions, [illegible] housing, and normal supply support will be provided by the parent base supporting the development/operational elements. If the [illegible] station(s) are remotely located, support facilities will be located on or adjacent to the [illegible] site(s).

2. Individual and integrated system training will be conducted on-site using R&D/operational equipment to the maximum extent possible. Facility support to ATC field training detachments will be required.

3. Communal facilities, including [illegible] housing and housing for families, are considered an essential part of the [illegible] system, and must be either available or provided simultaneously with development of the technical facilities. All communal facilities must meet Air Force standards with regard to quality and numbers. This is essential in order to insure the motivation and retention of the trained personnel required to operate and maintain this system.

4. Planning and programming for required support-type facilities will be the subject of future action.

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TYPE FUNDS: [illegible]

LOCATION: VANDENBERG AFB

ITEM CATEGORY: LAUNCH (MOD)

SENTRY

	BUDGET ESTIMATES (IN MILLIONS)			
PRIOR YEARS	FY 59	FY 60	FY 61	TOTAL
[redacted]				

BMD INDEX	ITEM DESCRIPTION	BUDGET ESTIMATE PRIOR	BUDGET ESTIMATE FY 59	BUDGET ESTIMATE FY 60	BUDGET ESTIMATE FY 61	DESIGN START	DESIGN COMPL	CONSTRUCTION START	CONSTRUCTION [illegible]	CONSTRUCTION MOD COMPL	REQ'D DATE
	G/M Launch Facility Modification				[illegible]	5-60	12/60	1/61	5/61	9/61	10/61

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LOCATION: VANDENBERG AFB

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ITEM CATEGORY: LAUNCHER (MOD)

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DESCRIPTION & UTILIZATION: The modification of launch stands "B" and "C" is required to provide an operational launch facility for the orbit requirements in the SENTRY Program. This modification will provide an orbital orientation launch capability for the SENTRY utilizing MOD II guidance station.

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TYPE FUNDS: P-300 MCP

LOCATION: VANDENBERG AFB

ITEM CATEGORY: MISSILE SUPPORT WS 117L

	BUDGET ESTIMATE (IN MILLIONS)			
PRIOR YEARS	FY 59	FY 60	FY 61	TOTAL
		2.1		2.1

BMD INDEX	ITEM DESCRIPTION	BUDGET ESTIMATE FY PRIOR	FY 59	FY 60	FY 61	DESIGN START	DESIGN COMPL	CONSTRUCTION AWARD	CONSTRUCTION BOD	CONSTRUCTION COMPL	NEED DATE
	G/M Assembly Bldg Extension			2.1		07/59	01/60	01/60	01/61	06/61	7/61

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[redacted]

LOCATION: VANDENBERG AFB

ITEM CATEGORY: MISSILE SUPPORT

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Description and utilization: This facility will contain 55,000 sq ft of floor area, and will be used as an assembly, check-out, and maintenance facility for the SENTRY vehicle.

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TYPE FUNDS: P-300 MCP

LOCATION: OFFUTT AFB

ITEM CATEGORY: TOCC & IPC (MOD)

	BUDGET ESTIMATES (IN MILLIONS)				
	PRIOR YEARS	FY 59	FY 60	FY 61	TOTAL
SENTRY			1.85		1.85

BMD INDEX	ITEM DESCRIPTION	BUDGET ESTIMATE FY PRIOR	FY 59	FY 60	FY 61	DESIGN START	DESIGN COMPL	CONSTRUCTION AWARD	CONSTRUCTION BOD	CONSTRUCTION COMPL	NEED DATE
	Technical Operations Control Center and Intelligence Processing Center			1.85		10/59	2/60	4/60	3/61	8/61	10/61

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SECRET

LOCATION: OFFUTT AFB

ITEM CATEGORY: TOCC & IPC

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DESCRIPTION AND UTILIZATION: The Technical Operations Control Center and Intelligence Processing Center will consist of a building or buildings having approximately 150,000 sq. ft. of floor space. This area is required to accomplish the following functions: Control mission planning and system command control and operation; orbital computations to correlate data from T/A stations and determine, correct, and predict ephemeris data; receive, evaluate and calibrate new reconnaissance data for rapid determination of vehicle equipment performance, and the generation of suitable correction programs and commands to be relayed to the space vehicle, communications center, initial reconnaissance data processing and miscellaneous command administration. The existing original Martin Aircraft Company Plant at Offutt AFB will be modified to satisfy the TOCC/IPC requirement.

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	OPERATIONAL KEY DATES	CY 59	CY 60	CY 61
1	Organization Activation Dates			
2	6594th Test Wing (Palo Alto)	X (A)		
3	6594th Launch Squadron (VAFB)	X (J)		
4	6596th Installation Squadron (VAFB)	X (J)		
5				
6	6594th Data Processing Sq (Denver)	X (J)		
7				
8	6594th Instrumentation Sq (NE)	X (O)		
9				
10	6595th Instrumentation Sq (Central)		X (O)	
11				
12	MANPOWER & TRAINING DATES:			
13	QPRI - Change 1	X (F)		
14	Proposed UMD Available	X (A)		
15	Training Concept Conference	X (A)		
16	Key Cadre - Phased-in	X (J) - - -	- - - - - - - - - - - -	- - - X (O)
17	IOC Tech Manual Dev Start		X (J)	
18	Main Complement Tng		X (S) - - -	- - - X (S)
19	Operational Capability Date			X (O)

SENTRY LAUNCH SCHEDULE

FY | CY 60 | FY | CY 61 | FY | CY 62 | FY | FY

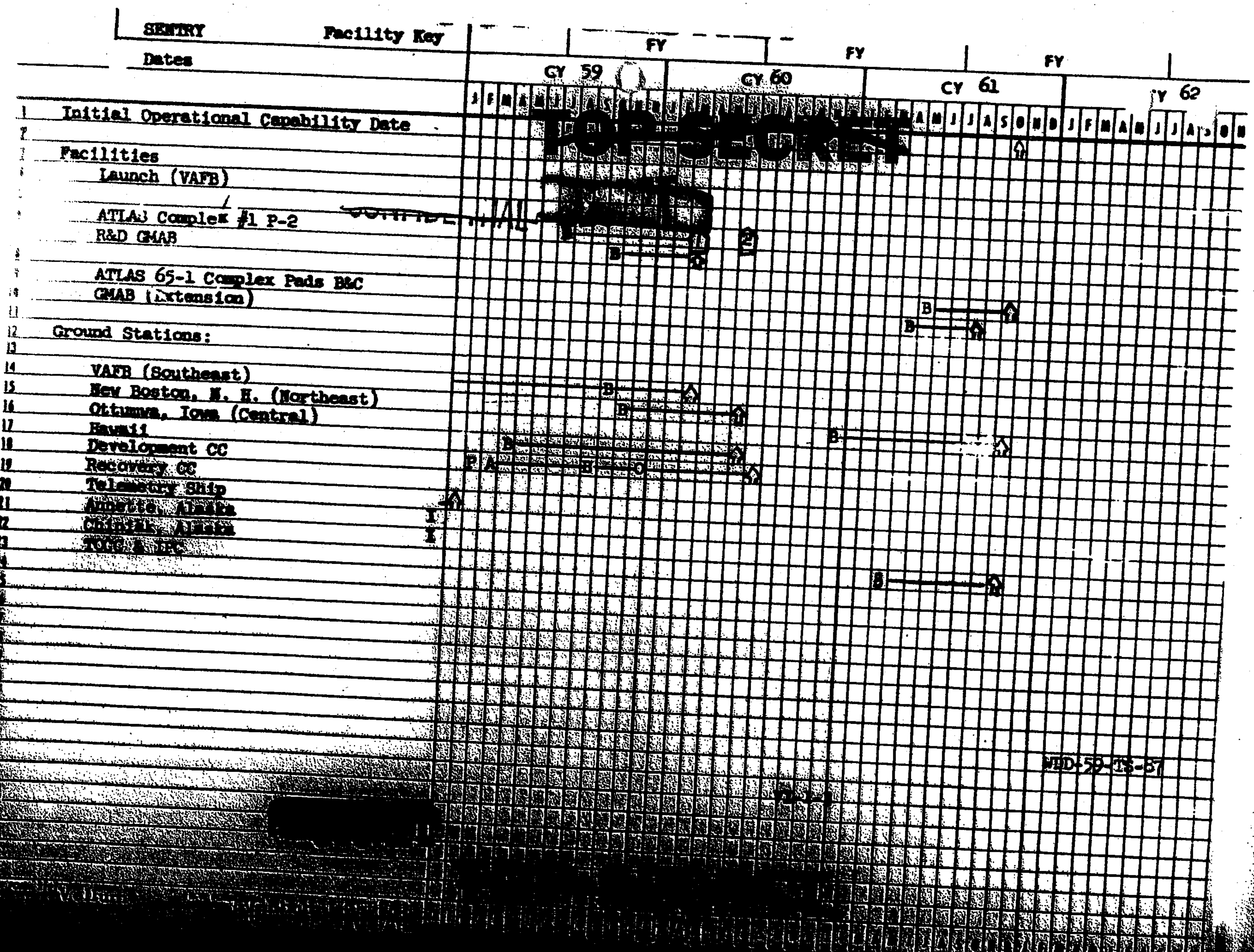
J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N D | J F M A M J J A S O N

[redacted]

R&D (ATLAS BOOSTED)	
READOUT	
SUBSYSTEM MODIFICATION	C C C E F E E E F E F E F E - - - - - - >>
	2 3 3 3 3
RECOVERY	CONFIDENTIAL [redacted] 1 1 1 - - - - - - - - - - >>
OPN'L (ATLAS BOOSTED)	
READOUT	
RECOVERY	1 1 1 1 1 1 1 1 1 1 1
	? ? ?
FACILITIES	
Atlas 65-1 Pads B & C	B - - - X
GMAB (2 Bay Add)	B - - - X

No longer applicable

[redacted]


SENTRY
Facility Key
Dates
FY
FY
FY
CY 59
CY 60
CY 61
Y 62
1 Initial Operational Capability Date
3 Facilities
Launch (VAFB)
ATLAS Complex #1 P-2
R&D GMAB
ATLAS 65-1 Complex Pads B&C
GMAB (Extension)
12 Ground Stations:
14 VAFB (Southeast)
15 New Boston, N. H. (Northeast)
16 Ottumwa, Iowa (Central)
17 Hawaii
18 Development CC
19 Recovery CC
20 Telemetry Ship
21 Annette, Alaska
22 Chiniak, Alaska
23 TOCC & IPC
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LOGISTICS

Task	FY / CY / CY 60 / CY 61 / CY
Log Study	
Basic Log Plan Concept	
Log Annexes Complete	
Depot Support Decision	
Complete System Log Plan	
GSE & Spares	
Booster	
Vehicles	
Tracking & Acquisition Stations	
Technical Operationan Control Center	
Intelligence Processing Center	
Tentative Tables of Equipment	
Boosters	
14 Vehicle	
15 Tracking & Acquisition Stations	
16 Technical Oper Control Center	
17 Intelligence Processing Center	

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SUMMARY OF FUNDS REQUIRED (In Millions)

	FY 60	FY 61
Lockheed		
Vehicle - - - - - - - - - - - - - - -	10.5	[redacted]
Payload - - - - - - - - - - - - - - -		
GSE - - - - - - - - - - - - - - - - -	(1.0)	
GSE (Technical Operations Center) -	(7.5)	
Training Parts - - - - - - - - - -	(2.0)	
RADC		
Equipment for Intelligence Processing Center	11.5 (5.4)*	[redacted]
Atlas Booster and GSE - - - - - - - - -	.4	[redacted]
Facilities		
Rehabilitation of Martin Plant	4.9 (.2)*	[redacted]
Modification ATIC Building	(2.5)	
MAB Addition - - - - - - - - - -	(.3)	
	(2.1)	
Modify (3) 65-1 Launch Stands - - -		[redacted]
TOTAL	27.3	

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NOTES: 1. This summary does not include funding requirements for support facility items such as living quarters, messing, administration, recreation and welfare, religious and medical facilities. In general, it is planned that SENTRY operational units will be located as tenant units at or near established Department of Defense installations. Immediate steps will be taken by ARDC (AFBMD) to notify the parent commands of bases concerned of specific SENTRY support facility requirements and planned personnel buildup. This action will permit commands concerned to initiate required programming activities.

2. This summary does not include P-400 funding requirements in support of training. ATC will budget for these requirements.

3. Funds indicated by asterisk are in support of the interim processing facility to be located at Offutt AFB during the R&D phase.

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SUMMARY OF FUNDS REQUIRED (In Millions)

APPROPRIATION		FY 60	FY 61
P-131	SENTRY Vehicles and [illegible]	[illegible]	[redacted]
P-131	ATLAS Boosters	[illegible]	[redacted]
P-214	Missile Assembly Bldg CSEV (Pumps)	[illegible]	[redacted]
P-214	SENTRY Launcher CSR	[illegible]	[redacted]
P-300	Missile Assembly Bldg	[illegible]	[illegible]
P-300	Tech. Ops Control Center	[illegible]	[illegible]
P-300	Modify [illegible] Bldg	1.85	[illegible]
P-300	Modify 65-1 Launcher	[illegible]	[illegible]
		11.67	[redacted]

* Rehabilitation of existing facilities to [illegible]

NOTES: 1. This summary does not include funding requirements for support facility items such as living quarters, messing, administration, [illegible] medical facilities. In general, it is planned that SENTRY operational units will be located as tenant units [illegible] Immediate steps will be taken by ARDC (WDSMB) to notify the parent commands of bases concerned of specific SENTRY support facility requirements and [illegible] buildup. This action will permit [illegible] activities.

2. This summary does not include [illegible] training requirements in support of [illegible] This requirements will be [illegible] during the training [illegible] scheduled for April 1959.

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[illegible]